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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,914	08/18/2003	Liexiang Fan	2003P08374US	3652

7590 06/30/2008  
Siemens Corporation  
Intellectual Property Department  
170 Wood Avenue South  
Iselin, NJ 08830

EXAMINER
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KIM, CHONG R

ART UNIT	PAPER NUMBER
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2624

MAIL DATE	DELIVERY MODE
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06/30/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/642,914	<b>Applicant(s)</b> FAN ET AL.	
	<b>Examiner</b> CHARLES KIM	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18-21 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-16, 18 and 19 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 20 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment and Arguments***

1. Applicants' amendment filed on April 8, 2008 has been entered and made of record.
2. Applicants' arguments with respect to the rejected claims have been considered but are moot in view of the new ground(s) of rejection, the details of which are provided below.

### ***Requirement for Information under 37 CFR 1.105***

3. Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.

In response to this requirement, please provide copies of each publication which any of the applicants authored or co-authored and which describe the disclosed subject matter of representing flow in a medical imaging system by displaying a positional change corresponding to a rate of change of a parameter.

In addition, please provide the title, citation and copy of each publication that any of the applicants relied upon to develop the disclosed subject matter that describes the applicant's invention, particularly as to developing a system for representing flow in medical imaging by displaying a positional change corresponding to a rate of change of a parameter. For each publication, please provide a concise explanation of the reliance placed on that publication in the development of the disclosed subject matter.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Applicants' Admitted Prior Art (hereinafter Admission) and Kawaguchi et al., U.S. Patent No. 5,677,501 (hereinafter Kawaguchi).

Referring to claim 1, Admission discloses a method for representing flow with a medical imaging system, the method comprising:

determining a rate of change of a parameter as a function of a difference in time between first and second images associated with different times, the first and second images representing a scanned region of a patient [pars. 2-3. Note that a speckle is tracked from one image to another by determining a correlation between the images. The correlation generates data regarding the flow direction and magnitude.];

displaying the change in the parameter in the second image [par. 3. Note that the different colors representing the flow direction and magnitude are displayed in the second image.].

Admission does not explicitly disclose displaying the change in the parameter by calculating a positional change in the parameter between the first and second images associated with different times, the positional change being displayed as a function [of] the rate of change and a function of the difference in time. Rather Admission discloses displaying the change in the

parameter by using a color wheel to represent different colors as a function of the rate of change and as a function of the difference in time [par. 3].

Kawaguchi discloses using information regarding a rate of change—direction and magnitude data—of a parameter to calculate and display a positional change in the parameter [col. 5, ll. 17-col. 6, ll. 2. Note that the positional change is represented by the offset in the pattern between selected flow images (see figs. 2-3).].

Admission and Kawaguchi are combinable because they are both concerned with flow display methods that visually represent a rate of change of a parameter. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Admission's display of the rate of change in view of Kawaguchi's teachings. The reason for doing so would have been to enhance the flexibility of the flow display system by providing a visual representation of the change in the parameter by displaying a positional change of a pattern in the images. Therefore, it would have been obvious to combine Admission with Kawaguchi to obtain the invention as specified in claim 1.

Referring to claim 2, Admission further discloses determining the flow direction and magnitude and determining the rate of change as a function of the flow direction and magnitude [pars. 2-3. See discussion above.].

Kawaguchi further discloses displaying the change as a perceived motion of a pixel [col. 5, ll. 17-col. 6, ll. 52 and figs. 2-3. Noted that the patterns in figure 3 are shifted to create a perception of motion of a pixel.].

Referring to claim 3, Kawaguchi further discloses displaying a pattern for a plurality of pixel locations, the pattern varying as a function of the rate of change [col. 5, ll. 17-col. 6, ll. 52 and figs. 2-3].

Referring to claim 4, Kawaguchi further discloses determining the rate of change as proportional to motion for pixels associated with flow [col. 5, ll. 17-col. 6, ll. 52 and figs. 2-3].

5. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kawaguchi and Yoshiya et al., J.P. Patent No. 02-161934 (hereinafter Yoshiya).

Referring to claim 20, Kawaguchi discloses a system for representing flow in medical imaging, the system comprising:

a processor operable to generate an at least partially persistent pattern (figs. 2-3) in each of at least two images (figs. 2-3), the persistent pattern shifted as a function of at least one of flow direction (PL) or flow magnitude (MG), the processor operable to calculate a second pattern in the second of the images as a function of a first pattern in the first of images [col. 5, ll. 16-col. 6, ll. 52. Note that the second pattern is equivalent to the first pattern shifted up one level (see fig. 3).]; and

a display operable to display the at least two images [col. 5, ll. 16-col. 6, ll. 52].

Kawaguchi does not explicitly disclose that the system for representing flow is in a medical imaging system and the images represent a region of a patient. However, systems for representing flow in medical imaging systems and images representing a region of a patient were exceedingly well known in the art. For example, Yoshiya discloses a system for representing

flow in a medical imaging system and images that represent a region of a patient [page 2 of translation].

Kawaguchi and Yoshiya are combinable because they are both concerned with flow imaging systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Kawaguchi in view of Yoshiya. The reason for doing so would have been to enhance the flexibility of the flow display system by implementing it in a variety of fields such as medical imaging. Therefore, it would have been obvious to combine Kawaguchi with Yoshiya to obtain the invention as specified in claim 20.

#### *Allowable Subject Matter*

6. Claims 5-16, 18-19 are allowed.
7. Claim 21 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### *Conclusion*

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 571-272-7421. The examiner can normally be reached on Mon thru Thurs 8:30am to 6pm and alternating Fri 9:30am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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June 25, 2008